A NEW SPECIES OF THE SYNAPTID GENUS *RYNKATORPA* ROWE & PAWSON, 1967 (HOLOTHURIOIDEA: APODIDA) FROM THE GREAT BARRIER REEF

By F. W. E. ROWE

INTRODUCTION

THE specimens described in this paper form part of a collection of echinoderms from off northern Queensland (15°43·2′ S, 145°27·4 E), in the vicinity of Lizard Island, Great Barrier Reef, collected by Dr P. E. Gibbs during the Royal Society of London/ Universities of Queensland Expedition to the Great Barrier Reef in 1973. The majority of echinoderm material has been identified and described by Gibbs, Clark & Clark (1976). However, three pieces of a synaptid holothurian were sent to me. These proved to represent a new species of the genus *Rynkatorpa* Rowe and Pawson.

DESCRIPTION OF NEW SPECIES

Rynkatorpa gibbsi sp. nov.

MATERIAL. Station D33, 15°43·2′ S, 145°27·4′ E, 16 m, sandy silt with few foraminifera, collected by Dr P. E. Gibbs on 31 August 1973. Holotype (anterior and posterior ends separated), British Museum (Natural History) no. 1974.12.3.60. Paratype (posterior end), the Australian Museum no. J9743.

DESCRIPTION. The two ends of the holotype and the posterior end of the paratype each measures 10 mm in length, with a diameter between 1·5 and 2·5 mm. The anterior end shows the animal to have 12 tentacles, each with a distal median knob and two pairs of lateral digits more or less equal in size. The most ventral tentacles are the smallest, the others increasing gradually in size dorsally. The tentacles bear 3–5 sensory cups in each of two vertical rows on the oral surface. There are 12 eye-spots, each at the base of and between adjacent tentacles. The calcareous ring has the usual form of the genus. The gonad is present, small and about 2 mm long. It is a dichotomous, antler-like structure with 3–4 lateral projections from each of the two branches (Fig. 1) and a single, median gonoduct. There is a single, ventral polian vesicle and the ciliated funnels occur along the mid-line of the left dorsal-lateral interradius. The stone canal is minute, single and sigmoid in form.

The calcareous spicules of the tentacles comprise C- or S-shaped rods (25–40 μm × 3–4 μm) and dumb-bell-shaped miliary granules (21–30 μm × 9–12 μm) (Fig.2).

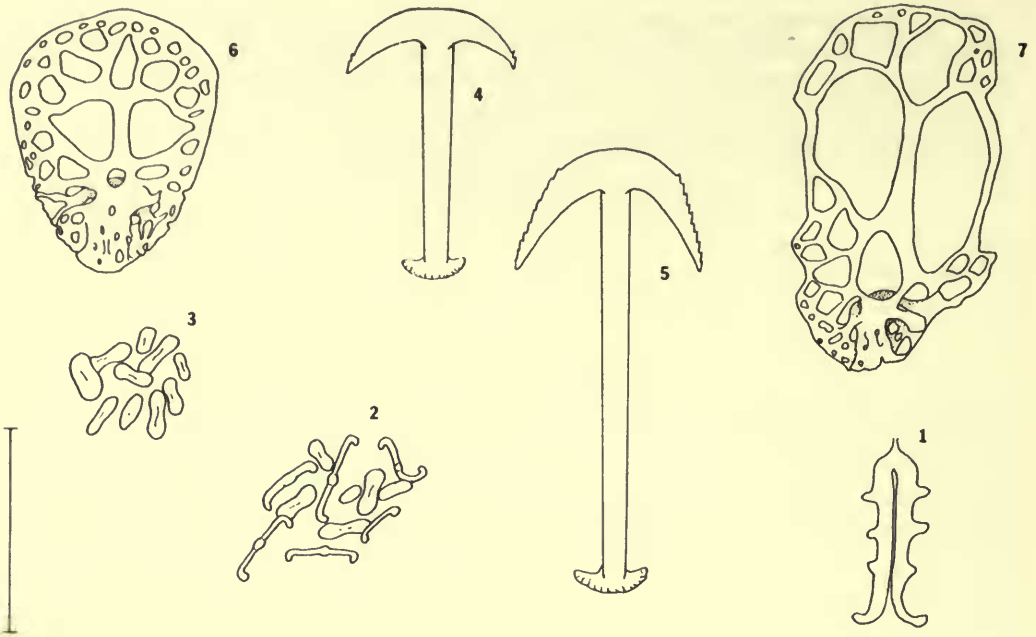

FIG. 1. Gonad, scale = 2 mm. FIG. 2. Rods and miliary granules from tentacle. FIG. 3. Miliary granules from body wall. FIG. 4. Anterior anchor. FIG. 5. Posterior anchor. FIG. 6. Anterior anchor plate (similar plates occur posteriorly). FIG. 7. Larger posterior anchor plate. Scale = 100 μm for figs 2–7.

In the body wall dumb-bell-shaped miliary granules (21–30 μm × 9–12μm) are present in the anterior portion but absent from the posterior portions of the body (Fig. 3).

The anchors are of one size only in the anterior portion of the body (125–135 μm long × 105 μm across the arm tips) but anchors in the posterior region are of two distinct sizes (150 μm long × 112 μm across the arm tips and 225–285 μm long × 112–135 μm across the arm tips). The stock of the anchors is unbranched and the arms bear 2–3 teeth on the small anchors and 8–11 on the larger anchors (Figs 4 and 5). The associated anchor plates correspond in size with the anchors. The anterior plates measure 127–150 μm in length × 90–112 μm in width and the posterior plates measure 135–143 μm × 90–120 μm and 180–225 μm × 105–127·5 μm. The plates are distinctive. The anterior and smaller posterior plates are more or less regularly pear-shaped, with the pair of larger central perforations similarly pear-shaped but aligned at 90° to the long axis of the plate and with the narrow end directed towards the outer edge of the plate. Anterior to these two perforations are three smaller ones in a horizontal line. The central one of these is usually the largest. The rest of the anterior part of the plate is perforated by 10–12 small holes. Posterior to the central perforations there are many small holes, but the posterior region is not produced in a 'handle'. A weakly formed bridge is present (Fig. 6). The larger

posterior plates are elongate, more or less rectangular and with the central pair of holes very much larger than the other perforations in the plate. There is a suggestion of a posterior 'handle' and a weak bridge is developed (Fig. 7).

DISCUSSION

The genus *Rynkatorpa* was established by Rowe & Pawson (1967) to accommodate a new species (*R. hickmani*) together with seven species that Clark (1907) included in the genus *Protankyra* Östergren, 1898. Since that time one new species (*R. pawsoni*) has been described by Martin (1969) from four specimens which had been attached to the posterior end of a fish host. Spicules were not found in these specimens, so there must remain some doubt whether *R. pawsoni* should be referred to *Rynkatorpa*, at least until further material is collected and the presence or absence of spicules is firmly established. Martin comments that the spicules may have been lost during destaining procedures in the preparation of mounted serial sections of the animals. '*R*'. *pawsoni* is the first reported ectocommensal holothurian.

'*R. pawsoni*' is distinguished from *R. gibbsi*, as is *R. bicornis* (Sluiter) and *R. duodactyla* (H. L. Clark), by the possession of only one pair of digits on the tentacles. *R. gibbsi* is most readily distinguished from the other species in the genus by the pear-shaped smaller anchor plates and the arrangement of the perforations in them. Additionally, *R. gibbsi* differs from *R. sluiteri* (Fisher) in the smaller size of the anchors which do not have a branched stock ; from *R. timida* (Koehler) by having a smooth and not a spinous margin to the perforations of the anchor plates ; from *R. challengeri* (Théel) in having smaller anchors and plates and only a single instead of two polian vesicles ; from *R. bisperforata* (H. L. Clark) in the form of the plates with a weak but definite posterior bridge and only one instead of three polian vesicles ; from *R. uncinata* (Hutton) in the form of the anchor plate perforations. *R. gibbsi* is most closely related to *R. hickmani* Rowe and Pawson from Tasmania and more recently collected from off Cape Howe, New South Wales (National Museum of Victoria, no. H302 ; an extension of range to the Australian mainland) but the form of the smaller anchor plates and the higher number of serrations on the arms of the anchors (8–11 in *gibbsi* ; up to 7 in *hickmani*) and the shape of the miliary granules separate the two species.

Rowe (in Rowe & Pawson, 1967) mistakenly described the young, branched gonad in the paratypes of *R. hickmani* as a stone canal. Gonads are obvious in specimens of this genus which are as small as 20 mm in length.

The discovery of *R. gibbsi* increases the number of species of *Rynkatorpa* to three occurring around the coasts of Australia. Interestingly the genus is now represented on the north-west coast (*R. bisperforata*), off the north-east coast (*R. gibbsi*) and from Tasmania and the south-eastern tip of Australia (*R. hickmani*). It is possible that the genus circumscribes Australia but has yet to be discovered on the south or south-western coasts. The other species have been recorded from New Zealand (*R. uncinata*) ; Indonesia (*bicornis* and *sluiteri*) ; Indonesia, Fiji and Hawaii (*challengeri*) ; Aleutian Islands, North Pacific (*duodactyla*) and Andaman Islands, Indian Ocean (*timida*).

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